

NEA NATIONAL ELECTRIFICATION ADMINISTRATION



Annual Report 1977

REPUBLIKA NG PILIPINAS
PAMBANSANG PANGASIWAAN NG ELEKTRIPIKASYON
(National Electrification Administration)
Lungsod ng Quezon

His Excellency
The President
Republic of the Philippines
Manila

Sir:

I have the honor to submit the Annual Report of the National
Electrification Administration for Calendar Year 1977.

Respectfully yours,

LEONARDO G. COLOSO
Acting Administrator

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Foreword

The year past has been one of continued growth and expansion for the rural electrification program. Substantial gains were registered in all major phases of the agency's operations ranging from cooperative organization to system construction to multiple programs aimed at maximizing the productive use of power for income-generating activities.

Calendar Year 1977 witnessed a significant increase in the number of households actually served by NEA-assisted electric cooperatives. Total house connections rose from 465,021 in 1976 to 652,664; thus surpassing the half-million mark within the period under review.

While activities continued at an accelerated pace, a new emphasis in program implementation was pursued in response to President Marcos' call for self-reliance in energy. Mini-hydro power development came as an important feature and a major thrust in NEA's operations during the year. The mini-hydro program seeks to develop indigenous water power resources to augment rural electrification efforts and at the same time, reduce the country's dependence on oil-fired generation.

As in the preceding years, NEA special projects also thrived. In the schoolhouse electrification effort, accomplishments posted a 300% increase over that of the past year. The project was also expanded to include the installation of electric-driven water systems in schools. In the international scene, on the other hand, the NEA continued to hold training activities for electrification leaders of developing countries.

All these activities make 1977 a fruitful year. While the accelerated tempo of rural electrification was sustained, new thrusts were also developed to supplement it.



HIGHLIGHTS

ENERGIZATION

The year under review saw the continuing increase in the number of towns and barrios electrified by NEA-assisted electric co-ops. Some 128 towns and 1,857 barangays were lighted up for a total of 541 towns and 5,736 barangays energized as of December 31, 1977. These added energizations reached 187,643 rural families.

To date, 652,664 households all over the country have received electricity from the co-ops. Considering that the average size of a Filipino family is 6 to 7 members, this means that approximately 4 million people have benefited from cooperative electrification.

STATUS OF PHILIPPINE ELECTRIFICATION As of December 31, 1977

REGION	TOTAL HOUSEHOLDS (IN THOUSANDS)	HOUSEHOLDS ELECTRIFIED (IN THOUSANDS)	%ELECTRIFIED
LUZON	3,440	1,580	46.4
VISAYAS	1,525	200	12.9
MINDANAO	1,320	198	15.2
TOTAL	6,285	1,978	31.3

STATUS OF PHILIPPINE ELECTRIFICATION As of December 31, 1977

A. POPULATION SERVED/NOT SERVED (000)

<u>Population Status</u>	<u>Towns</u>	<u>Cities</u>	<u>Total</u>
Served by NEA Co-ops	3345	567	3912
Served by Other Systems	3711	5540	9251
Not Served	26469	2422	28891
TOTAL	33525	8529	42054

B. PREMISES ELECTRIFIED/NOT ELECTRIFIED

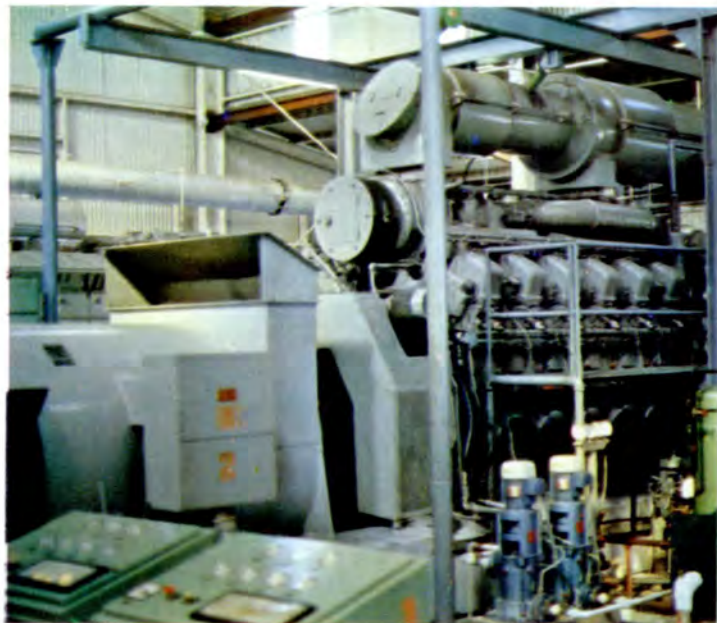
<u>Status</u>	<u>Towns</u>	<u>Cities</u>
NEA Co-ops	521	20
Other Electric Systems	402	40
Without Electric Systems	549	
TOTAL	1472	60

C. GENERATING CAPACITY/OWNERSHIP/TYPE OF PRIME MOVER

<u>Ownership</u>	<u>Type of Prime Mover</u>			<u>Total Megawatts</u>
	<u>Thermal</u>	<u>Hydro</u>	<u>Int. Com.</u>	
NEA Co-ops			57	57
Government: National	225	725	17	967
Municipal			16	16
Sub-Total	225	725	90	1040
Private: MERALCO	1836	15		1851
Others	234	4	712	950
Sub-Total	2070	19	712	2801
TOTAL	2295	744	802	3841

In Panay, the 68-kilometer 69 KV line jointly built by the electric co-ops in Aklan and Capiz was energized before the year ended. The said transmission line is intended to provide reliable electricity to the provinces of Aklan and Capiz. Source of power of the 69 KV line is the generating plant of the Capiz Electric Cooperative, Inc. (CAPELCO).

During the year, five co-op power plants equipped with Pielstick generators were also energized in the provinces of Cagayan, Isabela, Leyte, Capiz, and Zamboanga City. With a combined generating capacity of about 18,000 KW, these power plants will provide the needed electric power pending completion of NPC grid systems in these areas.



Several electric co-op systems were linked up to the newly-completed NPC grids in the Bicol region, Zamboanga del Sur, and Davao del Sur. This linking up of co-op systems to NPC grids greatly helps in the reduction of co-op electric rates. All the electric co-ops in Bicol, except that in Catanduanes, are now connected to the NPC grid. On the other hand, the NPC Mindanao grid is presently serving the electric co-ops in Zamboanga del Sur, Lanao del Norte, Lanao del Sur, and Agusan del Norte.

MINI-HYDRO PROGRAM



In line with the government's goal of reducing crude oil imports and achieving self-reliance in energy, the development of the country's mini-hydro resources was initiated.

For this purpose, an inter-agency task group was created. It is composed of representatives from the following offices: National Water Resources Council, National Power Corporation, National Irrigation Administration, Local Water Utilities Administration, and National Electrification Administration. The task group is charged with the development and establishment of generating plants, 5 MW or less, powered by natural water resources like rivers, streams, and waterfalls or irrigation canals.

While negotiations for assistance started with several Asian and European countries, the first concrete step in the launching of this

program was the signing of an agreement for the importation of three units of mini-hydro stations from the People's Republic of China. Signing the agreement were the NEA and the Philippine International Trading Corporation, a government-owned corporation which will undertake the importation for NEA.

During 1977, a mini-hydro plant was also reactivated and made operational in Sudipen, La Union. The 200-KW Amburayan hydroelectric plant provides electric service to an initial 200 rural households as well as irrigation systems of nearby fields.

The country's mini-hydro potential is estimated to be around 500,000 KW which can provide electricity to two million households or 40% of the country's rural population.

CAGAYAN VALLEY ELECTRIFICATION

During the year under review, financing for electrification of the Cagayan Valley Region was gained with a \$32 million appropriation from the \$93 million loan extended by Japan's Overseas Economic Cooperation Fund (OECF) to the Philippine government.

The rural electrification loan is in line with Presidential Decree No. 1189 implementing the Cagayan Integrated Agricultural Development Project. This provides for the immediate development of Cagayan Valley to be undertaken by eight major implementing agencies.

The Cagayan Valley electrification project involves the construction of transmission and distribution line networks and substations to service 104 municipalities in the provinces of Cagayan, Isabela, Quirino, Nueva Vizcaya, Ifugao, and Kalinga-Apayao.

Repayment period for OECF loans to the Philippine government is from 20 to 25 years, with a seven-year grace period and interest rates ranging from 3.25% to 3.5% per annum.

ORGANIZATION OF ELECTRIC CO-OPS

As of the end of 1977, the NEA has organized and registered a total of 100 electric cooperatives in 71 provinces of the country. The accomplishment is made more significant by the fact that NEA's immediate objective is to establish an electric cooperative in every province by 1977. To date, only the province of Batanes remains to be covered by the program.

Three more electric co-ops, including one in the province of Romblon, were actually organized in December 1977 but were not formally registered and incorporated during the year.





DEPARTMENT OF ENERGY

On October 6, 1977, President Ferdinand E. Marcos signed Presidential Decree No. 1206 creating the Department of Energy to formulate and implement the government's policies and plans on energy resources development. The decree attached the NEA to the department for the purpose of policy coordination and integration with sectoral programs. As provided for in the decree, the Department Secretary, to which position Geronimo Z. Velasco was later appointed, becomes ex-officio Chairman of the NEA Board of Administrators.

RATE REDUCTIONS

Substantial electric rate reductions were started by nine electric cooperatives during 1977. The decrease in rates ranged from 2 to 36 centavos per kilowatt-hour.

The one factor which triggered off majority of the rate reductions was availability of NPC power. Co-ops which previously operated their own generators saved on generating cost with the completion of NPC grid systems.

The nine electric co-ops which reduced their rates are in Davao del Norte, Davao del Sur, Central Pangasinan, Quezon, Sorsogon, Camarines Sur, Camarines Norte, Albay, and Nueva Ecija.

The rate reduction is in line with the government policy of providing low-cost power to the rural masses and the concept of the cooperative as a non-profit organization.



FORMATION OF CO-OP TASK FORCES

A dramatic undertaking in Naga City marked the start of a novel approach in the solving of a co-op's problems.

For 45 days during the months of July and August, Naga City became the focal point of an unprecedentedly massive electric cooperative effort. Nine electric co-ops pooled their resources together to help the Camarines Sur II Electric Cooperative, Inc. in ridding Naga City of long and frequent brown-outs.

The success of this first inter-cooperative undertaking spurred other co-ops to follow suit. Co-op task forces were formed to solve urgent power problems in Legaspi City, Tacloban City, Ilocos Sur, Roxas City, and Butuan City.

While electric co-ops have been helping each other for the past years, it was actually during 1977 that inter-cooperative undertakings became an institutionalized effort. With several electric co-ops assisting a particular co-op by way of materials and experienced manpower, a speedy way of solving acute problems emerged.



PROJECT TANGLAW

The year 1977 saw expansion and increased activity in the school electrification project. Accomplishments registered a 300% increase over that of the preceding year. From 2,077 schoolrooms energized in 1976, figures zoomed to 8,316 in 1977 for a total of 10,393 lighted schoolrooms as of December 31, 1977.

On the other hand, in a Memorandum of Agreement, the NEA together with the Department of Education and Culture, Department of Public Works, Transportation, and Communication and the Department of Health jointly agreed to harness their resources for the purpose of providing rural public schools with potable and sufficient water supply.

Aside from light, the project therefore is now designed to provide schools with power-

driven water systems; thus, it has adopted the new name TANGLAW, meaning "Toward Aggressive National Growth through Light and Water". For its first year of implementation, 1977, electric-driven water systems were installed in 53 schools.

The school electrification project aims for maximum use of school facilities through night classes. The installation of power-driven water systems enables students and teachers to have clean drinking water. Among other advantages, this helps limit the incidence of water-borne diseases such as gastro-intestinal ailments.

The lighted schools have enabled the holding of formal and non-formal courses for 60,000 students, adults, and out-of-school youth.



INTERNATIONAL SEMINARS



Three international training activities on rural electrification were conducted by NEA's Rural Electrification Training Office (RETO). Participants were 49 electrification officials from Bangladesh, Indonesia, and Pakistan.

The first conference-workshop was designed for program implementors from the three countries. Primary emphasis was to give them a working knowledge of the various aspects of rural electrification. The second training activity was for Bangladesh engineers and dealt mostly on the technical factors. The last activity was an observation tour to four electric co-ops by electrification officials from Indonesia.

As of December 31, 1977, five international seminars have been conducted in the country for 82 participants of 10 different countries. The training seminars are part of a series of regular training activities held to assist developing countries in the establishment of their own rural electrification program.





STATUS OF IMPLEMENTATION



STATUS OF IMPLEMENTATION OF THE NEA PROGRAM

Calendar Year 1977 marked the eighth year of implementation of the rural electrification program under the National Electrification Administration. It was also the fourth year of the NEA as a public corporation created by virtue of Presidential Decree No. 269 on August 6, 1973.

Basic operations. Several basic operations are undertaken which ensure the program's continuing capacity to produce "results" - in the form of lighted households. Feasibility studies are undertaken; co-ops are organized and registered; loan agreements are signed; architecture and engineering designs for the systems are contracted with local A&E firms; materials are procured and delivered; and finally, construction of the physical facilities is started.

In all these operations, the NEA registered significant gains. Activities were kept rolling and in the same accelerated tempo which has characterized the program during the past years.

While hastening the development of electric co-ops particularly the physical facilities, the NEA is also concerned with strengthening

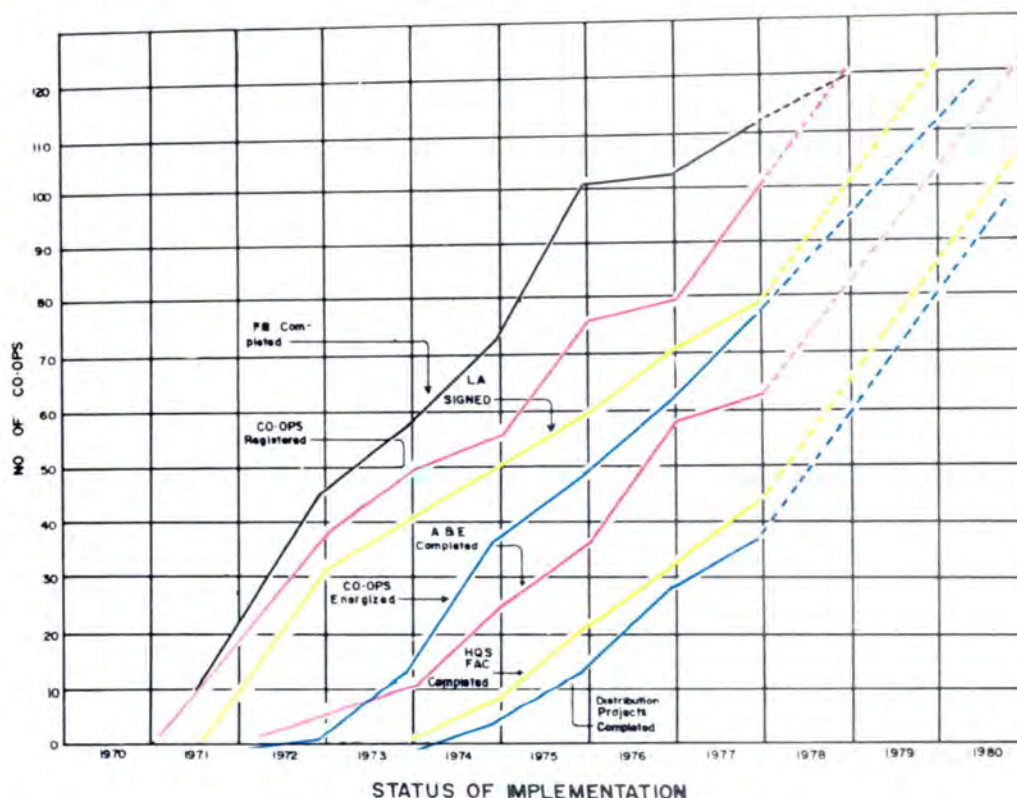
the organization as an institution. Toward this end, training activities are conducted for co-op personnel to enable them to perform effectively their duties. These training courses vary - from management to safety training and with participants ranging from linemen to board presidents. With the increased turn-out of operating co-ops, there has also emerged a need for membership education. A variety of tools is being utilized by electric co-ops to educate local folk on their rights and responsibilities as owners of the system. To date, the most effective and widely-used tool is the co-op newsletter.

Objectives. All these activities are directed towards objectives established within a definite time frame:

Long-range objective: To attain total electrification of the country by 1990 and provide electricity to all barrios by 1984.

Mid-range objective: To complete the country's "backbone system" (main distribution lines) by 1980.

Short-range objective: To establish an electric cooperative in each province by 1977.



Energization

	As of Dec. 76	CY 1977	As of Dec. 77
No. of Co-ops Energized	63	15	78
No. of Towns Energized	413	128	541
No. of Barangays Energized	3,879	1,857	5,736
No. of Houses Connected	465,021	187,643	652,664

RANKING OF ELECTRIC COOPERATIVES BY HOUSE CONNECTIONS

COOPERATIVE	NO. OF HSE. CONN.	COOPERATIVE	NO. OF HSE. CONN.
1. Pampanga	56,032	40. Camarines Sur I	5,182
2. Ilocos Norte	28,025	41. Mindoro Oriental	5,074
3. Cavite	27,445	42. Zamboanga Sur	4,957
4. Bulacan I	27,265	43. Catanduanes	4,594
5. Bataan	26,043	44. Davao Sur	4,541
6. Nueva Ecija I	24,996	45. Davao Norte	4,529
7. Ilocos Sur	21,375	46. Rizal I (Talim)	4,481
8. La Union	20,156	47. Bohol	4,185
9. Albay	19,880	48. Misamis Occidental II	3,900
10. Central Pangasinan	19,044	49. Maguindanao	3,462
11. Zambales	18,243	50. Agusan Norte	3,212
12. Benguet	18,098	51. So. Cotabato	2,968
13. Batangas	17,393	52. Central Negros	2,910
14. Tarlac	16,904	53. Sorsogon II	2,695
15. VRESKO	16,162	54. San Jose City	2,620
16. Laguna	15,246	55. Sulu	2,610
17. Capiz	12,500	56. Samar II	2,572
18. Zamboanga City	12,447	57. PRESCO	2,473
19. Nueva Ecija II	11,473	58. So. Leyte	2,409
20. Leyte I	10,406	59. Sorsogon I	2,369
21. Leyte II	10,134	60. Basilan	2,268
22. MORESCO	9,815	61. Palawan	1,948
23. Camarines Sur II	9,500	62. Antique	1,877
24. Iloilo I	8,712	63. Mindoro Occidental	1,860
25. Quezon I	8,520	64. Cebu	1,810
26. Lanao Sur	8,494	65. Camarines Sur IV	1,728
27. Isabela	8,261	66. Nueva Vizcaya	1,582
28. Lanao Norte	7,762	67. Marinduque	1,542
29. Rizal II	7,335	68. Samar I	1,442
30. Bulacan II	7,209	69. Leyte III	1,147
31. Camarines Norte	7,027	70. Iloilo II	810
32. Surigao Sur	6,783	71. Infanta	720
33. Abra	6,479	72. Lubang	560
34. Negros Oriental II	6,092	73. Mt. Province	542
35. Cagayan	6,040	74. Tawi-Tawi	464
36. Sapang Palay	5,832	75. Alicia	395
37. W. Pangasinan	5,784	76. Sultan Kudarat	332
38. Camarines Sur III	5,335	77. Leyte IV	208
39. Aklan	5,236	78. Cagayan de Sulu	203

STATUS OF ENERGIZATIONS

As of December 31, 1977

COOPERATIVE	Municipalities			Barrios			House Connections		
	As of Dec. 76	CY 77	As of Dec. 77	As of Dec. 76	CY 77	As of Dec. 77	As of Dec. 76	CY 77	As of Dec. 77
REGION I									
1. Ilocos Norte	18	2	20	203	114	317	17671	10354	28025
2. La Union	15	3	18	225	77	302	15206	4950	20156
3. Abra	12	—	12	89	17	106	5581	898	6479
4. Benguet	7	1	8	104	25	129	17148	950	18098
5. Ilocos Sur	23	3	26	35	212	247	13092	8283	21375
6. Mt. Province	1	—	1	1	1	2	499	43	542
7. W. Pangasinan	9	—	9	76	1	77	4288	1496	5784
8. C. Pangasinan	12	2	14	146	41	187	14712	4332	19044
REGION II									
9. Isabela	11	1	12	93	38	131	4341	3920	8261
10. Cagayan	8	—	8	50	10	60	2949	3091	6040
11. Nueva Vizcaya		1	1		5	5		1582	1582
REGION III									
12. Bataan	12	—	12	257	—	257	23874	2169	26043
13. Bulacan I	6	—	6	119	—	119	24528	2737	27265
14. Bulacan II		4	4		50	50		7209	7209
15. Nueva Ecija I	10	—	10	84	24	108	21587	3409	24996
16. Nueva Ecija II	9	1	10	26	4	30	9971	1502	11473
17. Pampanga	16	2	18	353	45	398	45925	10107	56032
18. Zambales	13	—	13	99	71	170	15887	2356	18243
19. Tarlac	7	7	14	104	47	151	12276	4628	16904
REGION IV									
20. Batangas	10	—	10	73	25	98	13061	4332	17393
21. Cavite	6	—	6	58	—	58	25427	2018	27445
22. Laguna	11	—	11	38	55	93	13722	1524	15246
23. Marinduque	3	—	3	24	—	24	1522	20	1542
24. Mindoro Occ.	1	2	3	4	11	15	1071	789	1860
25. Mindoro Or.	4	2	6	78	12	90	4601	473	5074
26. Palawan	1	—	1	5	3	8	1584	364	1948
27. Rizal I (Talim)	1	—	1	37	—	37	3751	730	4481
28. Rizal II		5	5		41	41		7335	7335
29. Quezon I	9	2	11	41	59	100	3988	4532	8520
REGION V									
30. Albay	12	2	14	110	6	116	12202	7678	19880
31. Camarines Sur I	9	1	10	68	29	97	3277	1905	5182
32. Camarines Sur II		8	8					9500	9500
33. Camarines Sur III		5	5		66	66		5335	5335
34. Camarines Sur IV		5	5		17	17		1728	1728
35. Camarines Norte	8	2	10	3	18	21	5925	1102	7027
36. Catanduanes	5	—	5	37	26	63	3721	873	4594
37. Sorsogon I	2	5	7	5	81	86	1408	961	2369
38. Sorsogon II		1	1		5	5		2695	2695

STATUS OF ENERGIZATIONS

As of December 31, 1977

COOPERATIVE	Municipalities			Barrios			House Connections		
	As of Dec. 76	CY 77	As of Dec. 77	As of Dec. 76	CY 77	As of Dec. 77	As of Dec. 76	CY 77	As of Dec. 77
REGION VI									
39. Aklan	10	1	11	37	14	51	4162	1074	5236
40. Antique		8	8		78	78		1877	1877
41. Capiz	10	4	14	98	40	138	6416	6084	12500
42. Iloilo I	10	5	15	101	60	161	6057	2655	8712
43. Iloilo II		4	4		2	2		810	810
44. VRESCO	5	—	5	43	—	43	15256	906	16162
45. C. Negros	1	1	2	3	4	7	2278	632	2910
REGION VII									
46. Negros Or. II		1	1					6092	6092
47. Bohol	10	—	10	83	19	102	3299	886	4185
48. Cebu	5	3	8	11	32	43	611	1199	1810
REGION VIII									
49. Samar I	1	—	1	4	1	5	1148	294	1442
50. Samar II	1	—	1	5	1	6	2276	296	2572
51. Leyte I	13	—	12	71	16	87	7434	2972	10406
52. Leyte II	3	—	3	20	21	41	8864	1270	10134
53. Leyte III	2	1	3		14	14	489	658	1147
54. Leyte IV		1	1					208	208
55. So. Leyte	4	2	6	50	25	75	1814	595	2409
REGION IX									
56. Sulu	1	2	3	4	13	17	1026	1584	2610
57. Zambo. City	1	—	1	25	5	30	10880	1567	12447
58. Alicia	1	—	1	3	4	7	250	145	395
59. Cagayan de Sulu	1	—	1	1	5	6	107	96	203
60. Tawi-Tawi	1	—	1	5	5	10	160	304	464
61. Basilan	3	—	3	2	11	13	1836	432	2268
62. Zambo. Sur		8	8		64	64		4957	4957
REGION X									
63. MORESCO	10	—	10	114	5	119	8659	1156	9815
64. Misamis Occ. II		2	2		14	14		3900	3900
65. Agusan Norte		2	2		9	9		3212	3212
REGION XI									
66. Davao Norte	4	3	7	46	35	81	3393	1136	4529
67. Davao Sur	4	5	9	4	24	28	2410	2131	4541
68. Surigao Sur	2	—	2	13	—	13	6539	244	6783
69. So. Cotabato			1		2	2		2968	2968
70. Sultan Kudarat		1	1		—	—		332	332
REGION XII									
71. Lanao Norte	11	1	12	85	19	104	5589	2173	7762
72. Lanao Sur	21	2	23	356	39	395	7166	1328	8494
73. Maguindanao	4	4	8	28	12	40	1289	2173	3462
74. Sapang Palay				5	8	13	5169	663	5832
75. San Jose City	1	—	1		5	5	2620	—	2620
76. Lubang	1	—	1				560	—	560
77. PRESCO				16	15	31	1749	724	2473
78. Infanta	1	—	1	1	—	1	720	—	720
TOTAL	413	128	541	3879	1857	5736	465021	187643	652664.

Loan Agreements

	As of Dec. 76	CY 1977	As of Dec. 77
Loan Agreements Signed	87	22	109
Loan Amount (P-M)	1,127	280	1,407

STATUS OF LOAN RELEASES

(In Thousand Pesos)
As of December 1977

COOPERATIVE	APPROVED LOAN	LOAN RELEASES			LOAN BALANCE
		Peso Fund Releases	E/M Releases	Total Releases	
1. Abra	14601	6754	7760	14514	87
2. Ilocos Norte	28800	19189	9611	28800	—
3. Ilocos Sur	24364	11998	9510	21508	2856
4. La Union	22434	10130	9008	19138	3296
5. Benguet	30000	14287	5821	20108	9892
6. Cagayan	20360	10266	7236	17502	2858
7. Isabela	26308	11878	8598	20476	5832
8. Mt. Province	3888	1023	1635	2658	1230
9. Nueva Vizcaya	11930	1882	591	2473	9457
10. Cagayan Valley	301	301	—	301	—
11. Bataan	19203	9521	6999	16520	2683
12. Bulacan I	35319	10308	8378	18686	16633
13. Bulacan II	8136	3777	882	4659	3477
14. Pampanga	23000	16780	6220	23000	—
15. PRESCO	267	109	158	267	—
16. Sapang Palay	4001	1616	2385	4001	—
17. Nueva Ecija I	32916	12097	10364	22461	10455
18. Nueva Ecija II	19006	5488	3743	9231	9775
19. Pangasinan	17779	8758	8872	17630	149
20. Central Pangasinan	27895	5870	2238	8108	19787
21. Zambales	20144	8695	7896	16591	3553
22. Tarlac	16739	6841	3179	10020	6719
23. Batangas	25751	8921	10984	19905	5846
24. Cavite	20480	9734	8222	17956	2524
25. Laguna	16000	6650	5918	12568	3432
26. Marinduque	20447	7076	3475	10551	9896
27. Mindoro Or.	21989	12675	6152	18827	3162
28. Mindoro Occ.	6859	4308	2551	6859	—
29. Palawan	8500	9771	1105	10876	(2376)
30. Quezon	11516	9529	1987	11516	—
31. Rizal (Tolim)	7384	5560	1406	6966	418
32. Rizal II	11377	3997	941	4938	6439
33. Lubang	3482	458	343	801	2681
34. Albay	19561	10074	9487	19561	—
35. Camarines Sur I	12877	7893	4984	12877	—
36. Camarines Sur II	21981	9286	1604	10890	11091
37. Camarines Sur III	12223	2764	1186	3950	8273
38. Camarines Sur IV	13881	2510	2319	4829	9052

STATUS OF LOAN RELEASES

(In Thousand Pesos)
As of December 1977

COOPERATIVE	APPROVED LOAN	LOAN RELEASES			LOAN BALANCE
		Peso Fund Releases	E/M Releases	Total Releases	
39. Camarines Norte	11683	9561	2122	11683	
40. Catanduanes	31300	10451	6025	16476	14824
41. Sorsogon I	14354	8150	5317	13467	887
42. Sorsogon II	16748	2933	221	3154	13594
43. Aklan	16755	13149	3606	16755	—
44. Antique	25022	6492	5701	12193	12829
45. Capiz	18771	19997	6650	26647	(7876)
46. Iloilo I	25241	10148	10276	20424	4817
47. Iloilo II	22890	2298	2714	5012	17878
48. Central Negros	38230	7200	2447	9647	28583
49. VRESCO	30920	3224	4363	7587	23333
50. Bohol	21958	10482	7790	18272	3686
51. Cebu	20613	6360	3710	10070	10543
52. Negros Or. I	23765	6467	4537	11004	12761
53. Negros Or. II	36139	6945	63	7008	29131
54. Leyte I	28600	23265	5335	28600	—
55. Leyte II	24581	13747	3608	17355	7226
56. Leyte III	14857	975	716	1691	13166
57. Leyte IV	14250	548	163	711	13539
58. Leyte Sur	18700	7613	5985	13598	5102
59. Samar I	6096	2596	2667	5263	833
60. Samar II	18898	9758	2731	12489	6409
61. Sulu	12588	4986	1979	6965	5623
62. Zamboanga City	34931	15211	9650	24861	10070
63. Zamboanga del Norte	12249	3917	936	4853	7396
64. Zamboanga del Sur	17145	7872	3129	11001	6144
65. Alicia	937	761	176	937	—
66. Tawi-Tawi	3900	1080	1160	2240	1660
67. Cagayan de Sulu	991	898	93	991	—
68. Bukidnon	18415	399	126	525	17890
69. Lanao del Norte	23450	8080	12465	20545	2905
70. Lanao Sur	17751	10897	6854	17751	—
71. Misamis Occ. I	9774	3850	3384	7234	2540
72. Misamis Occ. II	11566	1079	754	1833	9733
73. Misamis Or. II	15680	317	234	551	15129
74. Surigao del SSur	26599	7090	3941	11031	15568
75. Agusan del Norte	14289	2405	870	3275	11014
76. Cotabato	20018	226	412	638	19380
77. Cotabato-Bukidnon	480	480	—	480	—
78. Cotabato Sur I	21922	2239	1350	3589	18333
79. Cotabato Sur II	25804	108	84	192	25612
80. Sultan Kudarat	11249	259	539	798	10451
81. Davao del Norte	33920	14797	8501	23298	10622
82. Davao del Sur	16554	5706	4666	10372	6182
83. Maguindanao	20150	3196	5362	8558	11592
84. Basilan	12157	4213	1914	6127	6030

TOTAL

1504589

571199

339074

910273

594316 23

Construction

	No. of Coops			Amount (P-M)		
	As of	CY	As of	As of	CY	As of
	Dec. 76	77	Dec. 77	Dec. 76	77	Dec. 77
Construction of Headquarters Facilities						
Completed	33	11	44	61	—	80
On-Going	9	—	3	14	—	6
Total	42	11	47	75	11	86
Construction of Transmission System						
Completed	—	2	2	—	1	1
On-Going	4	—	4	4	1	5
Total	4	2	6	4	2	6
Construction of Distribution System						
Completed	27	11	38	16	10	26
On-Going	19	6	25	16	8	24
Total	46	17	63	32	18	50
Construction of Power Plant						
Completed	18	4	23	15	18	33
On-Going	8	—	2	19	—	16
Total	26	4	25	34	18	49

*Peso cost does not include cost of poles and foreign materials such as conductors, hardwares, transformers and generators.

PHYSICAL FACILITIES COMPLETED DURING 1977

Headquarters Complex

	Project	Cost (P1000)
1.	MORESCO	600
2.	Palawan	2334
3.	Bulacan	1902
4.	Marinduque	1865
		20
5.	Oriental Mindoro	2018
6.	Laguna	2056
7.	Nueva Ecija I	2005
		160
8.	Davao Sur	1555
9.	Camarines Sur	2170
10.	Sorsogon	2308
11.	Lubang Island	175
	Others*	167
	TOTAL	19335

*Minor force account projects, e. g., site development, landscaping, fencing.

Distribution System (Backbone)

	Project	Cost (P1000)
1.	Isabela	733
2.	Aklan	1347
3.	Cebu	398
4.	So. Leyte	426
5.	Antique	618
6.	Camarines Sur	544
7.	Nueva Ecija	848
8.	Sorsogon	635
9.	Tawi-Tawi	60
10.	Camarines Sur II	120
11.	Quezon	773
	Others *	3126
	TOTAL	9628

*Rehab. of lines, service drop installation, construction of laterals.

Power Plant Projects

Transmission System

	Project	Cost (P1000)
1.	Capiz-Aklan	585
2.	Capiz-Aklan	585
	TOTAL	1170

	Project	Cost (P1000)
1.	Antique	145
		18
		2969
2.	Samar II	280
		30
3.	Negros Occ.	540
4.	Sorsogon	320
		21
5.	Basilan	1370
		28
	Others*	12619
	TOTAL	18340

*Minor projects, e.g., hauling, soil exploration and rehab of gensets.

Equipment & Materials

Amounts Received (\$1-M)			
	As of Dec. 76	CY 1977	As of Dec. 77
Equipment and Materials Received			
USAID	43	11	54
Japanese Reparations	7	—	7
Excess Property	5	—	5
Others	1	—	1
Total	56	11	67

	As of Dec. 76	CY 1977	As of Dec. 77
Delivery of Critical Materials			
Poles	141,059	85,869	226,928
Wires (km.)	48,902	18,661	67,603

Architecture & Engineering Work

No. of Co-ops				Amount (P-M)		
	As of Dec. 76	CY 1977	As of Dec. 77	As of Dec. 76	CY 1977	As of Dec. 77
Architecture and Engineering						
Completed	57	4	61	30	7	37
On-Going	11	9	20	11	9	20
Total	68	13	81	41	16	57

Project Feasibility Studies

	As of Dec. 76	CY 1977	As of Dec. 77
Feasibility Studies			
Completed	103	10	113
In-Process	7	1	8
Total	110	11	121

Co-op Newsletters

	As of Dec. 76	CY 1977	As of Dec. 77
No. of Co-ops with Newsletters	49	9	58
No. of Regional Newsletters	2	—	2

Training

	As of Dec. 76	CY 1977	As of Dec. 77
Training Activities Conducted	516	264	780
No. of Participants Trained	19,378	8,775	28,153

	Number of Activities Conducted	
	1976	1977
Field Training	28	78
In-House Training	23	31
Electrical Trades	56	90
Safety Training	21	66

In addition to the training courses held for co-op and NEA personnel, the NEA has two unique programs aimed at meeting the expanding manpower needs of the electrification program as well as helping the employment situation in the country.

In coordination with the Boy Scouts of the Philippines and the Department of Education and Culture, a scout electricians' course is held in various places in the country. With this training, young scouts are given the opportunity to earn on part-time jobs as electricians in their towns. They are utilized by the co-ops on contractual basis for housewiring jobs, especially during vacation. As of December 31, 1977, the number of boy scouts trained has reached 639.

On the other hand, the National Electrical Trades Training Program (NETTP) trains out-of-school youth and unemployed adults as linemen, electricians, and plant operators. As of December 31, 1977, a total of 6,323 individuals have been trained, with 85% absorbed by electric co-ops. The NETTP is undertaken together with the National Manpower and Youth Council and National Power Corporation.

Organization

	As of Dec. 76	CY 1977	As of Dec. 77
Co-ops Registered	79	21	100

REGISTERED ELECTRIC COOPERATIVES

Cooperative	Date of Registration	Cooperative	Date of Registration
1. Talim, Rizal	31 Aug 70	51. Palawan	25 Jan 74
2. VRESCO	1 Feb 71	52. Zamboanga City	23 Feb 74
3. MORESCO	1 Feb 71	53. Samar I	27 Feb 74
4. Iloilo I	10 Jun 71	54. Mindoro Occidental	25 Mar 74
5. Capiz	16 Jun 71	55. Mt. Province	25 May 74
6. Leyte I	2 Jun 71	56. Alicia	21 Jan 75
7. Ilocos Norte	7 Jul 71	57. Tarlac	24 Jan 75
8. Surigao del Sur	20 Jul 71	58. Tawi-Tawi	25 Jan 75
9. La Union	6 Aug 71	59. Lubang	20 Feb 75
10. Bohol	11 Aug 71	60. Central Negros	24 Feb 75
11. So Leyte	27 Aug 71	61. Cagayan de Sulu	4 Apr 75
12. So Cotabato I	31 Aug 71	62. Basilan	24 May 75
13. Lanao del Sur	7 Sep 71	63. Davao del Sur	1 Jun 75
14. Lubang*	8 Sep 71	64. Camarines Sur II	10 Aug 75
15. Sariaya Community	14 Sep 71	65. Samar II	23 Aug 75
16. Davao del Norte	24 Sep 71	66. Maguindanao	4 Sep 75
17. First Catanduanes	28 Oct 71	67. Nueva Ecija II	22 Sep 75
18. Cagayan	25 Nov 71	68. Central Pangasinan	6 Oct 75
19. Isabela	24 Mar 72	69. Iloilo II	18 Oct 75
20. Abra	28 Mar 72	70. Camarines Norte	23 Oct 75
21. Cebu	22 Apr 72	71. Leyte II	26 Oct 75
22. Quezon	24 Apr 72	72. Leyte III	30 Oct 75
23. Aklan	25 Apr 72	73. Sultan Kudarat	4 Nov 75
24. Bukidnon	13 May 72	74. Leyte IV	7 Nov 75
25. Cotabato	16 May 72	75. Camarines Sur III	2 Dec 75
26. Lanao del Norte	27 May 72	76. Rizal II	9 Jan 76
27. Batangas	14 Jun 72	77. Misamis Occidental II	2 Jun 76
28. Negros Oriental	14 Jun 72	78. Bulacan II	28 Aug 76
29. Zambales	30 Jun 72	79. Moresco II	2 Oct 76
30. Albay	9 Aug 72	80. Agusan del Norte	12 Feb 77
31. Misamis Occ.	18 Aug 72	81. Camarines Sur IV	18 Feb 77
32. Zamboanga del Norte	23 Aug 72	82. Negros Oriental II	2 Apr 77
33. Zamboanga del Sur	25 Aug 72	83. Sorsogon II	14 Apr 77
34. Nueva Vizcaya	26 Sep 72	84. So. Cotabato II	7 May 77
35. Western Pangasinan	28 Sep 72	85. Kalinga-Apayao	15 May 77
36. Camarines Sur I	27 Nov 72	86. Ifugao	16 May 77
37. Antique	10 Dec 72	87. Quirino	7 Jul 77
38. Pampanga	20 Dec 72	88. Bukidnon II	26 Jul 77
39. Sorsogon	17 Jan 73	89. Batangas II	12 Aug 77
40. Mindoro Or. I	16 Feb 73	90. Oriental Mindoro II	15 Aug 77
41. Sulu	24 Feb 73	91. Agusan del Sur	26 Aug 77
42. Bulacan	11 Mar 73	92. Surigao del Norte	24 Sep 77
43. Marinduque	27 Mar 73	93. No. Samar	3 Oct 77
44. Laguna	3 Apr 73	94. Masbate	23 Nov 77
45. First Cavite	23 Jun 73	95. Eastern Samar	9 Dec 77
46. Biliran	6 Jul 73	96. Leyte V	21 Dec 77
47. Bataan	8 Aug 73	97. Cebu II	28 Dec 77
48. Benguet	5 Oct 73	98. Camiguin	28 Dec 77
49. Nueva Ecija I	24 Nov 73	99. Siquijor	29 Dec 77
50. Ilocos Sur	24 Jan 74	100. Davao Oriental	30 Dec 77

*Registered with EA on its first registration.



SPECIAL PROJECTS



Tanglaw

A self-help community project, TANGLAW is designed to provide electricity to rural schools so that maximum use of facilities can be derived for evening classes, adult education, vocational courses, social activities, and improved instruction through educational television (ETV). It also aims to provide students adequate supply of potable water through the installation of power-driven school water systems.

	As of Dec. 76	CY 1977	As of Dec. 77
No. of Schools Energized	348	978	1,326
No. of Schoolrooms Energized	2,077	8,316	10,393
No. of Schools with Water Systems	—	53	53

Irrigation

Together with the Farm Systems Development Corporation, a program to provide electric power to irrigation pumps was also instituted to help farmers increase their income. Under the program, irrigators' service associations composed of local farmers are organized to set up, manage, and operate electric-driven irrigation facilities.

	As of Dec. 76	CY 1977	As of Dec. 77
No. of Pumps Connected	373	116	489
Areas Irrigated (Ha.)	28,202	4,173	32,375

Barangay Water Systems

The barangay water systems program was designed to provide rural folk with safe and adequate supply of potable water. Water service associations composed of local residents are formed to handle and manage electric-driven water systems.

	As of Dec. 76	CY 1977	As of Dec. 77
Operational Projects	3	3	6
Non-operational	—	8	8

Small-Scale Industry

To give the rural people additional sources of income and employment opportunities, a program was started which establishes power-using small and medium-scale industries within energized co-op areas. Sufficient funding and technical assistance are extended to operating co-ops for the establishment of their own small-scale industry projects.

	As of Dec. 76	CY 1977	As of Dec. 77
No. of Projects	10	—	10
Approved Loan (P1000)	3,350	—	3,350
Amount Released (P1000)	1,979	650	2,629

Fishermen's Assistance Program

This project seeks to improve the productive capacities of small fishermen through the installation of ice and cold storage plants and fish markets to be owned and operated by fishermen's associations. Loans are provided these associations to finance the initial cost of constructing the cold storage facilities.

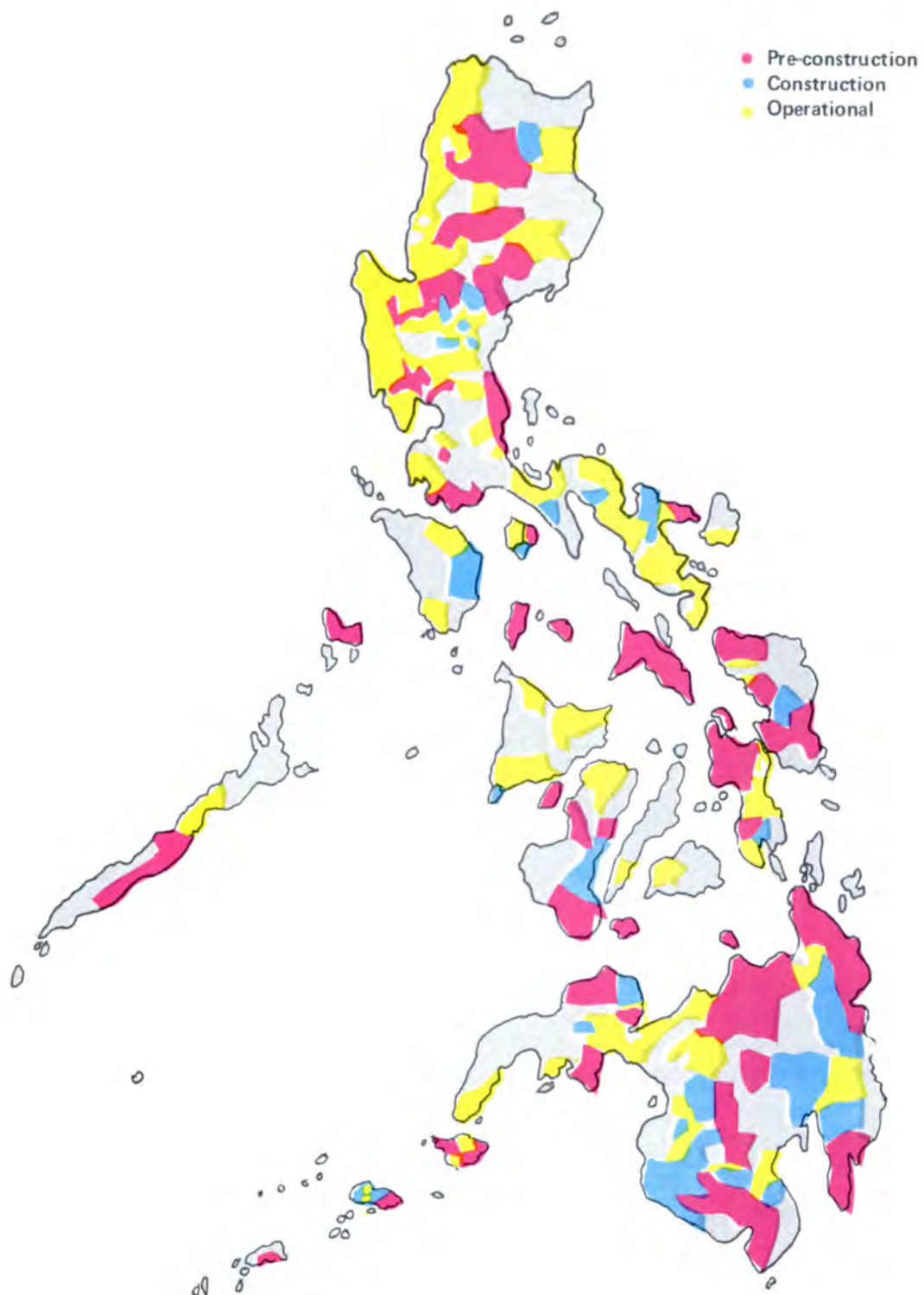
	As of Dec. 76	CY 1977	As of Dec. 77
Loan Agreements Signed	2	—	2
Loan Amount (P1000)	4,793	—	4,793

International Seminars

TRAINING ACTIVITIES CONDUCTED IN THE PHILIPPINES FOR INTERNATIONAL PARTICIPANTS

Activities Conducted	Countries Involved	No. of Participants	Electric Co-ops Visited	
I. Conference-Study Tour on Rural Electrification: Philippine Experience March 1-11, 1976	Bangladesh Bolivia India Indonesia Jordan	Papua New Guinea Pakistan Thailand	20	Albay La Union Misamis Oriental Tarlac
II. Conference-Workshop on Developing a National Program on Rural Electrification Aug. 23 — Sept. 19, 1976	Bangladesh Indonesia Pakistan	11	Benguet La Union Misamis Oriental Pampanga	
III. Conference-Workshop on Initial Steps on Electric Cooperative Development Jan. 16 — Feb. 28, 1977	Bangladesh Indonesia Pakistan	23	Albay Benguet Camarines Sur I Camarines Sur IV Camarines Norte Central Negros La Union Misamis Oriental Quezon VRESCO (Negros Occidental)	
IV. Seminar-Workshop on Engineering Aspects for Electric Cooperative Developers June 3 — July 29, 1977	Bangladesh	19	Batangas I Benguet Laguna La Union Misamis Oriental Sapang Palay Tarlac	
V. Observation Tour on Management and Operations of Electric Cooperatives Nov. 16 — 22, 1977	Indonesia	16	Batangas I Capiz Iloilo I Iloilo II	

RURAL ELECTRIFICATION
STATUS OF IMPLEMENTATION
As of December 31, 1977



Financial Statements

STATEMENT OF INCOME & EXPENSES For the Calendar Year Ending December 31, 1977

OPERATING INCOME

Interest Income—Loans, Cooperative	₱23,157,773.50	
Interest Income—Loans, Private Franchise	510,814.19	
Interest Income—Loans, Municipal System	815,776.20	
Miscellaneous Operating Income	723,726.96	
Total Operating Income		₱25,208,090.85

OPERATING EXPENSES

Interest on Long-Term Debts	₱ 565,385.37	
Salaries, Wages & Per Diems	7,360,615.67	
Transportation & Travel	1,272,536.27	
Gas, Grease & Oil	519,760.71	
Rent, Power & Water	1,720,376.54	
Telephone, Telegram & Postage	166,672.85	
Depreciation Expenses	675,916.23	
Materials & Office Supplies	441,441.82	
Employee Benefits	2,536,955.79	
Repairs & Maintenance	160,113.21	
Special Services	75,651.72	
Miscellaneous Operating Expenses	1,243,060.87	
Total Operating Expenses		16,738,487.05

NET INCOME/(LOSS) FROM OPERATION **₱8,469,603.80**

OTHER INCOME

Interest Income—DPB Savings	₱ 358,193.17	
Interest Income—DBP Fund Trustee	1,247,370.75	
Interest Income—DBP Saving — SPO-LP	79,076.97	
Miscellaneous Non-Operating Income	1,066,181.43	2,750,822.32

OTHER EXPENSES

Amortization of Development Costs	₱1,080,704.76	
Foreign Exchange Difference	91,106.02	1,171,810.78

NET **1,579,011.54**

NET INCOME/(LOSS) FOR THE PERIOD

₱10,048,615.34

BALANCE SHEET
As of December 31, 1977

A S S E T S

CURRENT ASSETS

Cash on Hand and on Deposit	P 11,265,664.65
Deposit on Letters of Credit	581,524.75
NEA/AID Trust Funds	8,234,939.54
Working Funds	2,259,261.68
Loans Receivable	5,859,356.63
Accrued Interest Receivable	6,419,941.06
Inventories	79,454,822.04
Prepaid Expenses	296,154.86
Other Current Receivable	5,506,508.00

Total Current Assets **P 119,878,173.21**

LONG-TERM LOANS RECEIVABLE

1,081,473,654.49

PROPERTY, PLANT & EQUIPMENT

7,977,427.51

Less: Accumulated Depreciation 1,835,920.79

NET

6,141,506.72

DEVELOPMENT COSTS

38,309,246.93

Less: Accumulated Amortization 1,897,669.13

NET

36,411,577.80

TOTAL ASSETS

P1,243,904,912.22

LIABILITIES AND CAPITAL

CURRENT LIABILITIES

Interest Payable 8,558,625.80

Accounts Payable — General 1,426,854.50

Retentions Payable 6,309,739.44

Other Current Liabilities 4,163,564.84

Total Current Liabilities

P 20,458,784.58

LONG-TERM DEBTS

364,729,799.86

CAPITAL STOCK—Authorized 1M Shares

P 385,188,584.44

P100 — par P1,000,000,000.00

Less: Subscribed & Unpaid Capital Stock 294,444,615.46

PAID-IN CAPITAL STOCK

P 705,555,384.54

DONATED CAPITAL

133,570,333.63

RETAINED EARNINGS

19,590,609.61

TOTAL CAPITAL

P 858,716,327.78

TOTAL LIABILITIES & CAPITAL

P1,243,904,912.22

NEA ACTUAL CASH FLOW STATEMENT (PESO FUND)
Calendar Year 1977
(In Thousand Pesos)

SOURCES

Cash on Hand and in Banks, Beg	6348
Cash in Bank - Coop Trustee	17461
Equity Payment from Government	214874
Revenue	
Loan Interest and Amortization	680
Interest Income - DBP Savings	366
TOTAL SOURCES	239729

USES

Loan to Electric Coops	
Architecture and Engineering	14405
Headquarters Facilities	18708
Transmission/Distribution	23803
Power Plant	17096
Poles and Crossarms	32884
LP Construction Materials	12638
Consolidations	38483
Housewiring Funds	4600
Working Capital	9454
Transportation and Warehousing	4204
Trust Fund	—
Special Importations	1115
NEA Operations	
NEA In-House	19702
Consultants	1168
Sundries	
Fishermen's Assistance Program	202
Electric Coop Mutual Protection Fund	34
Rural Electrification Training Office	136
TANGLAW	296
Power Use	294
TOTAL USES	199222
Cash on Hand and in Banks, End	40507

RURAL ELECTRIFICATION TARGETS

	ACTUAL As of '77	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	TOTAL
POLES	226,644	120,571	121,594	103,928	45,617	44,264	44,946	44,946	44,946	44,946	44,946	887,348
LINES (KM)	16,483	10,961	11,054	9,448	4,147	4,024	4,086	4,086	4,086	4,086	4,068	76,547
NUMBER OF COOPERATIVES ORGANIZED	100	25										125
NUMBER OF BARRIOS ENERGIZED	5,736	3,500	4,000	4,500	4,600	4,400	4,400	2,100				33,236
NUMBER OF TOWNS AND CITIES ENERGIZED	541	280	274	250								1,345
NUMBER OF HOUSEHOLDS CONNECTED	652	440	358	493	567	570	183	183	183	183	183	3,995

More of 1977-In Pictures



September 11 was the brightest day of the year 1977 as electric co-ops energized 120 barangays and 12 towns in a single day - the President's birthday. Photo shows Pres. Marcos inspecting the status of electrification in Ilocos Sur in the course of his sentimental return to the Ilocos provinces.



All over the country, electric co-ops reported outstanding right-of-way donations. In Quezon, Engr. Raymundo Tan had 377 of his coconut trees felled to enable the local electric co-operative to construct its distribution lines passing through his land.



Electric co-ops intensified their efforts in member education. Many co-ops initiated the practice of holding membership seminars. Prospective members are made to undergo a seminar before their applications can be approved.

WORKING HAND IN HAND, NO OBSTACLE OR ADVERSARY WOULD BE AS GREAT. A classic example of the effectiveness of inter-cooperative endeavor is Legaspi City. During Pres. Marcos' visit to that city, he ordered that the urgent power problem be solved in a month's time. The NEA and 10 electric co-ops immediately went into action and the problem was solved in 14 days of hard work and sheer determination.



The social benefits of rural electrification never cease to unfold. In the words of Pres. Marcos himself: "... in addition to the expected profit and fruits in the economic and infrastructure sides of our society, the social and political effects of rural electrification have been beyond our wildest dreams."

As the long line of electric poles is seen in more and more places in the countryside, the numerous rural folk living in darkness realize that their period of waiting and hoping will soon be over.



BOARD OF ADMINISTRATORS



GERONIMO Z. VELASCO
Ex-Officio Chairman



ALFREDO L. JUINIO
Ex-Officio Member



CEFERINO S. CARREON
Member



JAIME C. LAYA
Member



CONRADO D. DEL ROSARIO
Member



LEONARDO G. COLOSO
Ex-Officio Member

EXECUTIVE OFFICIALS



LEONARDO G. COLOSO
Acting Administrator



LEONARDO G. COLOSO
*Deputy Administrator for
Administration and
Cooperatives Development*



ROBERTO F. DE OCAMPO
*Deputy Administrator for
Finance and Franchises*



CESAR S. TORRES
*Deputy Administrator for
Engineering and Materials*



ESTER R. AGUILUZ
Corporate Auditor

NATIONAL ELECTRIFICATION ADMINISTRATION ORGANIZATION CHART

